

REMARKS

This Amendment cancels claims 1-15 and adds new claims 16-18. New claim 16 is supported by claim 1 and page 41 of the specification. New claim 17 is taken from canceled claim 4, while claim 18 corresponds to canceled claim 15. Claims 16-18 are pending.

This Amendment overcomes the 35 U.S.C. § 112, second paragraph, rejection of claim 14. More particularly, claim 14 has been canceled and new claims 16-18 do not employ undefined relative terms. Reconsideration and withdrawal of the indefiniteness rejection of claim 14 are earnestly requested.

The provisional obvious-type double patenting rejection of claims 1-4 over claims 1-3 of co-pending application S.N. 10/522,705 is traversed, both substantively and procedurally. Substantively, the claims of this application are patentably distinct from those of the '705 application, which require impregnation under pressure (rather than coating) of an architectural textile. Claims 16-18 require selection of an adhesion promoter from a specified Markush grouping; in contrast, claims 1-3 of the '705 application recite an *optional*, generic adhesion promoter (d).

Procedurally, this provisional rejection should be withdrawn to permit allowance of this application, subject to entry of a non-provisional obvious-type double patenting rejection in the '705 application, *if appropriate*. Reconsideration and withdrawal of the obvious-type double patenting rejection are earnestly requested.

The 35 U.S.C. § 103(a) rejection of claims 1-5 and 11-15 over U.S. Patent No. 6,354,620 to Budden et al. in view of European Patent Publication 552,983 ("Europe '983") is traversed. A feature of the claimed method for improving the fraying resistance of an architectural textile is the preparation of a specified aqueous polyorganosiloxane emulsion having at least one adhesion promoter, which is selected from a group consisting of protective hydrocolloids, hydroxylated silanes carrying, per molecule, at least one hydroxyl group and at least one aminated and salfified functional group, POSS carrying, per molecule, at least one hydroxyl group and at least one aminated and salfified functional group, and mixtures thereof. The aqueous polyorganosiloxane emulsion is deposited on an architectural textile and crosslinked to produce a architectural textile coated with an elastomer layer, having a ratio of the weight of the coating, expressed on a dry

basis, to the weight of the architectural textile, of less than 0.2.

Silicone coatings have been used to improve the mechanical properties of architectural textiles. However, there are several technical problems associated with the use of such coatings, including inadequate adhesion of the elastomer coating to the architectural textile, an undesirable increase in the calorific value of the architectural textile, and inadequate chemical and/or physical emulsion stability. (Specification, page 2, lines 16-35). Thus, the emulsion disclosed in Europe '983 is said to exhibit inadequate adhesion and limited emulsion stability (Specification, page 4, lines 11-16).

The inventors have discovered the fraying resistance of an architectural textile can be improved, while maintaining a low coating weight ratio, by selecting an adhesion promoter from the group consisting of protective hydrocolloids, hydroxylated silanes and/or POS carrying at least one hydroxyl group and at least one sialified amino group per molecule, and mixtures thereof. Compare the fraying resistance results of samples prepared according to the claimed method to a sample prepared without the adhesion promoter, set forth on page 41 of the specification.

The cited combination of references fails to raise a prima facie case of obviousness against the claimed method because one of ordinary skill in the art would not be led to select either a adhesion promoter of the claimed method or coat an architectural textile such that a ratio of the dry weight of the coating to the weight of the architectural textile is less than 0.2. Budden et al. is directed to reducing the coefficient of friction of a textile fabric which has been previously coated with an organic coating composition, such that the good physical properties of the underlying coating are not impaired. See Col. 1, lines 24-27; Col. 2, lines 25-28; and Col. 8, lines 60-63. Importantly, Budden et al.'s silicone compositions are not emulsions and do not contain an adhesion promoter chosen from the Markush group of the present invention. Budden et al. also fails to recognize the importance of a low coating weight/fabric weight ratio. Instead, it coated its fabric with a first, elastomeric coating having a ratio of the weight of the first coating, expressed on a dry basis, to the weight of the architectural textile, of about 0.5-0.7.¹ See col. 10, lines 53 to 59 and col. 11, lines 54 to 61.

¹A polyamide fabric of 470 Dtex has a weight equal to 170-225 g/m². The coat weight of the first coating was 120 g/m². Accordingly, 120/170 = 0.70 and 120/225 = 0.53.

The deficiencies of Budden et al. are not remedied by the additional disclosure of Europe '983, which discloses aqueous silicone emulsions which comprise an organopolysiloxane, an organohydrogenpolysiloxane, an adhesive aid and a curing catalyst.

Europe '983 also fails to recognize the importance of a low coating weight/fabric weight ratio. Thus, in its example (page 5, lines 38-39), the ratio of the weight of its organopolysiloxane coating, expressed on a dry basis, to the weight of the nylon fabric is about 0.50-0.67,² as opposed to the claimed method's upper limit of less than 0.2.

Europe '983 expressly teaches the addition of "any of well-known adhesive aids such as organo-functional silanes and amino-functional silanes" to enhance adhesion of its coating compositions to air bag fabrics (page 4, lines 33-34; emphasis added). The single example illustrates the use of an organo-functional silane (formula 4). Thus, Europe '983 does not disclose or suggest its optional adhesion promoter should be selected from the group consisting of protective hydrocolloids, hydroxylated silanes

²Europe '983 used a plain weave fabric of 420-denier nylon filaments, which is equal to a fabric weight of 150-200 g/m². The dry silicone coating thickness was about 100 µm, which is equal to 100 g/m². Accordingly, 100/150 = 0.67 and 100/200 = 0.50.

carrying, per molecule, at least one hydroxyl group and at least one aminated and salified functional group, POSSs carrying, per molecule, at least one hydroxyl group and at least one aminated and salified functional group, and mixtures thereof.

Applicants readily admit polyvinyl alcohol is known. Indeed, the Europe '983 example illustrates the addition of polyvinyl alcohol to its organopolysiloxane coating emulsion. However, the polyvinyl alcohol was added to increase the viscosity of the composition (page 4, lines 54-55), not to increase its adhesion to the fabric substrate. As noted above, an "epoxy carbon functional silane" of formula (4) was added to the same coating emulsion to increase adhesion. See page 5, lines 18-19 and 32-33.

The Patent Office argument that adhesion promotion is inherent to the polyvinyl alcohol employed in the Europe '983 composition is without merit. Obviousness cannot be predicated on what is unknown, In re Rijckaert, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). In this case, Europe '983 fails to provide one of ordinary skill in the art with any suggestion, implicit or otherwise, that polyvinyl alcohol may be used to promote adhesion of an organopolysiloxane coating to an architectural fabric.

The applicants have discovered certain compounds can be used to increase adhesion of aqueous organopolysiloxane emulsions to architextural textiles after coating and crosslinking, to produce coated architectural fabric which exhibits improved resistance to fraying. Nothing in Budden et al. or Europe '983 discloses or suggests either the utility of the Markush grouping of adhesion promoters or the increased resistance to fraying displayed by architectural fabrics prepared by the claimed method.

Reconsideration and withdrawal of the obviousness rejection of claims 1-5 and 11-15 over Budden et al. in view of Europe '983 are earnestly requested.

It is believed this application is in condition for allowance. Reconsideration and withdrawal of all rejections of claims 1-15, and issuance of a Notice of Allowance directed to claims 16-18, are respectfully requested. The Examiner is urged to telephone the undersigned should she believe any further action is required for allowance.

A Petition and fee for a one month Extension of Time are attached. It is not believed any additional fee is required for entry and consideration of this Amendment. Nevertheless, the

U.S. Patent Appln. S.N. 10/518,402
AMENDMENT AFTER FINAL REJECTION

PATENT

Commissioner is requested to charge any additional required fee to
Deposit Account No. 50-1258.

Respectfully submitted,

/James C. Lydon/

James C. Lydon
Reg. No. 30,082

Atty. Docket No.: **PLAS-028**
100 Daingerfield Road
Suite 100
Alexandria, Virginia 22314
Telephone: (703) 838-0445
Facsimile: (703) 838-0447

Enclosure:
Petition for Extension of Time